Fracture repair

Simple fracture=>bone breaks into two pieces

Reduction of fracture

1. TRAUMA

Direct trauma

Immediate iinflammation by the ends of 2 fragments

Broken osteons, torn peristeum, bleeding, inflammation, etc

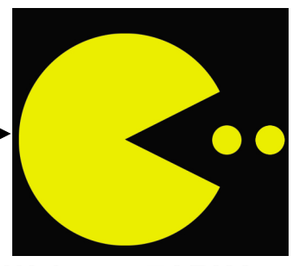
Indirect trauma

Stoppage of blood flow (O2, nutrients) through broken

Hemostasis in Haversion canal--> death of osteocytes :(

2. EARLY REPAIR

Neutrophils and macrophages clean out blood clot by phagocytosis



Wake up EARLY to play Pacman (Phagocytosis)

3. CALLUS FORMATION

Repair tissue (looks like mesenchyme, called granulation tissue) formed around ends of fragments

Internal and External callus formed around fracture point

External callus can be palpated as a lump (ouch?)

formed by proliferation of osteoprogenitor cells from periosteum *see other flow chart

4. UNION

Internal and External calluses meet and fuse

Large separation: mixture of mesenchyme, cartilage, and spongy bone

FIBROUS UNION

Mesenchymal tissue of 2 fragments meets in middle

CARTILAGINOUS UNION

Carilage of 2 fragments fuses

BONY UNION

Forming bone trabecula of 2 framents fuses

MUST be remodeled into lamellar bone, 6-8 weeks